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The Role of Artificial Intelligence in Corporate Software License Management: A Survey of Challenges, Solutions, and Future Directions

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Abstract: ***Corporate software license management has become. This refers to the movement of containers by trucks. It is a crucial but very complex operation. It is encountering surging expenses, greater legal liabilities and. inherent inefficiencies of manual tracking. Failure to manage these. Exposing assets can lead to severe financial consequences for an organization. legal risks. In response, Artificial Intelligence (AI) has emerged. It has ability to change how we consume technology and AI. oversight to proactive, intelligent automation. This survey provides. A close look at the use of AI in Software Licensing at present and the future. A top notch curated selection of 13 seminal texts.***

Academic and industry publications. Our review synthesizes. research on four major themes: automatic number-plate recognition, . Smart Compliance Checking and Cost Prediction. Machine learning and natural intelligence share similar structures. Language Processing (NLP). The analysis reveals a significant gap. A separation of academic solutions found for one-off tasks. Reading and the important role of ITSM in application parsing and the management of integrated, end-to-end managerial tools. Furthermore, a disconnect exists. theoretical risk identification and the limited remediation. strategies available in practice. The survey concludes that the. Innovation is taking a new directional shift. fragmented tools toward holistic solutions. We foreshadow the. the rise of unified AI-powered Software-as-a-Service or SaaS platforms that are the needed evolution to resolve these identified. Fill in loopholes and merge advancements into a common strategy asset for modern enterprises.

I. INTRODUCTION

The management of corporate software licenses has evolved. transforming into a complex situation requiring a great deal of. resource-intensive strategic discipline. As software becomes. Organizations encounter significant challenges due to an important operational asset. Financial and legal risks which entail wasted money on. using assets insufficiently and imposes harsh penalties for killing. Many point-solution have been created to resolve unique difficulties, the piecemeal character of the equipment. Often lacks to offer a complete management framework. The. The rise of AI gives us a new model. Transforming from manual processes to an automated, streamlined one. Automatic, timely, and data-driven approach that requires. a unified strategic platform. This introduction establishes the. It describes the basic idea of a license. what solution integrates AI and what benefits users The survey's extent and the article's outline is demonstrated. A. Background and Context. Software Asset Management deals with managing and optimizing the purchase, deployment, maintenance and disposal of... Care for, Make use of, Give away. within an organization. Its strategic importance lies in its. These have substantial effect on costs, risk, and operations. efficiency. However, traditional SAM is fraught with difficulties. Companies deal with high operating costs and the regular. This could mean risking noncompliance, which could lead to an expensive vendor audit. and legal penalties [1], [10]. Manual tracking and contract. reviews typically contain many errors that take time to correct. and resources.

A. Background and Context

Software Asset Management (SAM) refers to the business practice which helps organizations to purchase, deploy, maintain, utilize, and dispose of software applications effectively. The strategic importance of the operations management of an organization works directly upon cost, risk and efficiency. However, traditional SAM is fraught with difficulties. Companies are burdened with massive operating costs and the risk of non-compliance, which leads to expensive vendor audits and litigation costs [1], [10]. Recording and reviewing contracts manually is prone to error, taking up a lot of time. Empirical data underscores the scale of this problem. According to research, almost one third of all SaaS licenses in a typical organization have less than 50The conventional nonautomated systems cannot measure up to this complex multidimensionality and the fast-changing software environment.

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B. The Imperative for AI-Based Solutions

We urgently need solutions based on AI. Standard systems for license management that do not use AI are largely reactive in nature. Entering data manually and limited analytical potential. They. Try to give instant awareness into an organization's. Software landscape almost makes management proactive. impossible. In contrast, AI and Machine Learning (ML). Present a collection of sophisticated features that facilitate and. improve integral processes, altering SAM from a clerical function into a strategic one. In the real world, concrete issues are being solved. problems in license management. For instance.

1) Natural Language Processing (NLP) is used in. interpret legal documents while offering insight as to the agreement's validity. This capability can. Speed up contract review time from days to hours. for instance in programs such as Florida Virtual Campus's use of the LegalSifter platform [6]. [6].
2) Robotic Process Automation (RPA) automates work that is repetitive and manual. Tasks requiring rules such as asset discovery, inventory updates,. and license follow-up, greatly minimizing manual work. and reduction of the human errors [11], [12]. [11], [12].
3) Machine Learning (ML) Organizations can predict future software through predictive analytics using algorithms driven by (ML). requirements reliant on previous utilisation patterns. This allows for. Optimizing license allocation and identifying issues. that renewal does not happen before assessing cost savings [11]. [11].

These AI-driven capabilities are no longer theoretical. They. Enterprise environments are currently employing various strategies. Provide measurable enhancements in efficiency compliance software development will be perform, standards will become new culture. assets are managed.

C. Scope of This Survey

This paper provides a comprehensive survey based on a. An exact duplicate of input or output sentence should not be Such 11 duplication shall be erased and punishable. this field. The scope of the survey covers the primary domains. where AI is making a difference for instance.

1) License tracking and identification automated.
2) Smart buttocks risk assessment and compliance
3) Forecasting to save costs.
4) The utilization of specialized AI/ML models, for example NLP. and Retrieval-Augmented Generation (RAG).

We present an application to orient our analysis in practice. *Licensly*, an idea-based AI SaaS platform for a software license. management. Licensly serves as a framework to synthesize. Results from the surveyed literature that illustrate the. Can technological advancements and research threads? come together as a useful solution.

D. Organization

The remainder of this paper is organized as follows.

1) The literature survey is presented in Section III.
2) Section IV talks about areas that need research. the Licensly concept.
3) The survey finishes with Section V.
4) Section VI lists the references.

II. LITERATURE SURVEY

A thorough review of existing literature is essential for. Recognizing the up-to-date technology of AI-based software. license management. This section is structured in two parts. To begin with, we give summaries of the 13 key papers individually. which form the basis of the survey. Furthermore, we give a summary table for a comparative analysis. as areas of focus, methodologies, and key contributions.

A. Individual Paper Summaries

1) Yang, R., et al. (2025): Case study on RAG-based virtual assistant engineering identifying operational challenges relevant to enterprise-grade systems [1].
2) Yang, Z., et al. (2024): Explores AI agents for cloud infrastructure management and interaction modalities — relevant for automated asset discovery [2].
3) Li, B., et al. (2025): Systematic review on OSS license management; highlights gaps like legal ambiguity and tampering [3].

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4) Daliparthi, V. S. S. A., et al. (2024): Implemented a license management system for collaborative AI; proposes synchronization licenses and suggests blockchain [4].
5) Chakraborty, K., et al. (2024): Discusses AI for eresource license management in libraries — validates contract review automation [5].
6) Erb, R. A. (2022): LegalSifter case study demonstrating effective NLP-driven contract review [6].
7) Haridasan, P. K. (2024): Reviews AI+SaaS benefits — supports SaaS delivery model for AI platforms [7].
8) Adebiyi, O. I., & Adeusi, O. C. (2025): Reviews opensource licensing models affecting AI development — informs AI-aware compliance rules [8].
9) Lewis, P., et al. (2020): RAG architecture — foundational for knowledge retrieval in compliance systems [9].
10) Eisner, R. S. (2020): Defines five AI IP components — helps scope assets to track [10].
11) Dewani, P., & Raizada, S. (2024): Quantifies benefits of AI in SAM (30% savings, 25% risk reduction) [11].
12) Vadrevu, N. R. T. (2025): Reviews engineering patterns for AI-augmented admin tools in B2B SaaS [12].
13) Jyoti, et al. (2024): Explores AI generators' impact on software composition — new challenges for license tracking [13].

B. Comparative Summary

III. FUTURE WORK AND PRACTICAL APPLICATION

While the surveyed literature demonstrates significant. Artificial Intelligence is now being used to help with processing software licenses. Study reveals a lot of gaps in management. and practical challenges. A cohesive, end-to-end solution. How about. It has not yet been made to incorporate these different developments. frontier. This section identifies the key limitations of current. Emerging technology will help in this research. Licensly is the right option to fill these gaps. An app that builds out the pieces surveyed to create a. next-generation solution.

A. Identified Research Gaps and Limitations

Legal terms interpreted through vagueness automatically.

Confusing rules of law (like, "Derivative Works") is

TABLE I COMPARATIVE SUMMARY OF SURVEYED LITERATURE

Paper #	Authors (Year)	Focus Area	Methodology	Key Contribution	Relevance to Licensly
	Yang, R., et al. (2025)	AI Software Engineering	Case Study	Engineering challenges for RAG systems	Informs RAGOps requirements
	Yang, Z., et al. (2024)	Cloud Infrastructure Automation	Case Study	Interaction modalities for AI agents	Asset discovery design
	Li, B., et al. (2025)	OSS License Management	SLR	Gaps: ambiguity, tampering	Compliance engine constraints
	Daliparthi, V. S. S. A., et al. (2024)	Collaborative AI Licensing	Framework	Synchronization licenses; blockchain	Derivative AI asset mgmt
	Chakraborty, K., et al. (2024)	E-Resource Licensing	Qualitative	AI-assisted contract review	Validates contract parsing
	Erb, R. A. (2022)	AI in Contract Review	Case Study	NLP reduces review time	Direct evidence for parsing
	Haridasan, P. K. (2024)	AI in SaaS	Literature Review	Strategic benefits for SaaS+AI	Justifies SaaS model
	Adebiyi & Adeusi (2025)	OSS/AI Licens-ing	Literature Review	RAIL	AI-specific license handling
	Lewis et al. (2020)	RAG	Model Dev	RAG architecture	Foundational retrieval
	Eisner (2020)	AI IP	Legal Analysis	Five AI IP components	Defines asset categories
	Dewani & Raizada (2024)	AI in SAM	Review	30% cost savings	ROI case for Licensly
	Vadrevu (2025)	Automation in B2B SaaS	Review	Engineering patterns	Scalable automation design
	Jyoti et al. (2024)	SaaS AI Genera-tors	Exploratory	AI generators' impact	Need to track AI-generated code

a core challenge. Current systems rely on heuristicbased. Although they can detect well, they are not able to capture legal nuance [3]. [3]. Artificial intelligence production reinforces the omission and non-existence of license information. Linked to the source code, making tracing provenance and assigning source more difficult [3]. [3]. Can't Be Done: Proposal for Fixes. Generic and impractical actions by arbiters in complex disputes; advanced remediation like automated negotiation. is largely unexplored [3]. [3]. When designing artificial intelligence systems, careful evaluation and adaptive guardrails must be in place. Tools and frameworks (RAGOps) Operational control. LLM versioning and evolving threats [1]. [1].

B. New Technology and Future Directions

Promising directions include advanced LLMs for nuanced. Litigation considers blockchain origin and unchangeability. Cloud-native RAG architectures and automated enforcement. To assist with the management of large, dynamic knowledge bases. [4], [9].

C. Practical Application: The Licensly Platform

Licensly is a comprehensive AI-SaaS platform being designed. This brings together all the technologies studied into an Enterprise solution. Key functionalities include.

The license tracking and inventory is empowered by AI and utilizes automated discovery, SCA output, and more cloud agent insight. Natural Language Processing (NLP) and Retrieval-Augmented Generation (RAG) will be used to read the contracts and check the compatibility. compared to a selected information source. Suggests Reallocation for Cost Optimization or termination of underutilized licenses. Platform where alerts get resolved manually, and provenance can be tracked.

IV. CONCLUSION

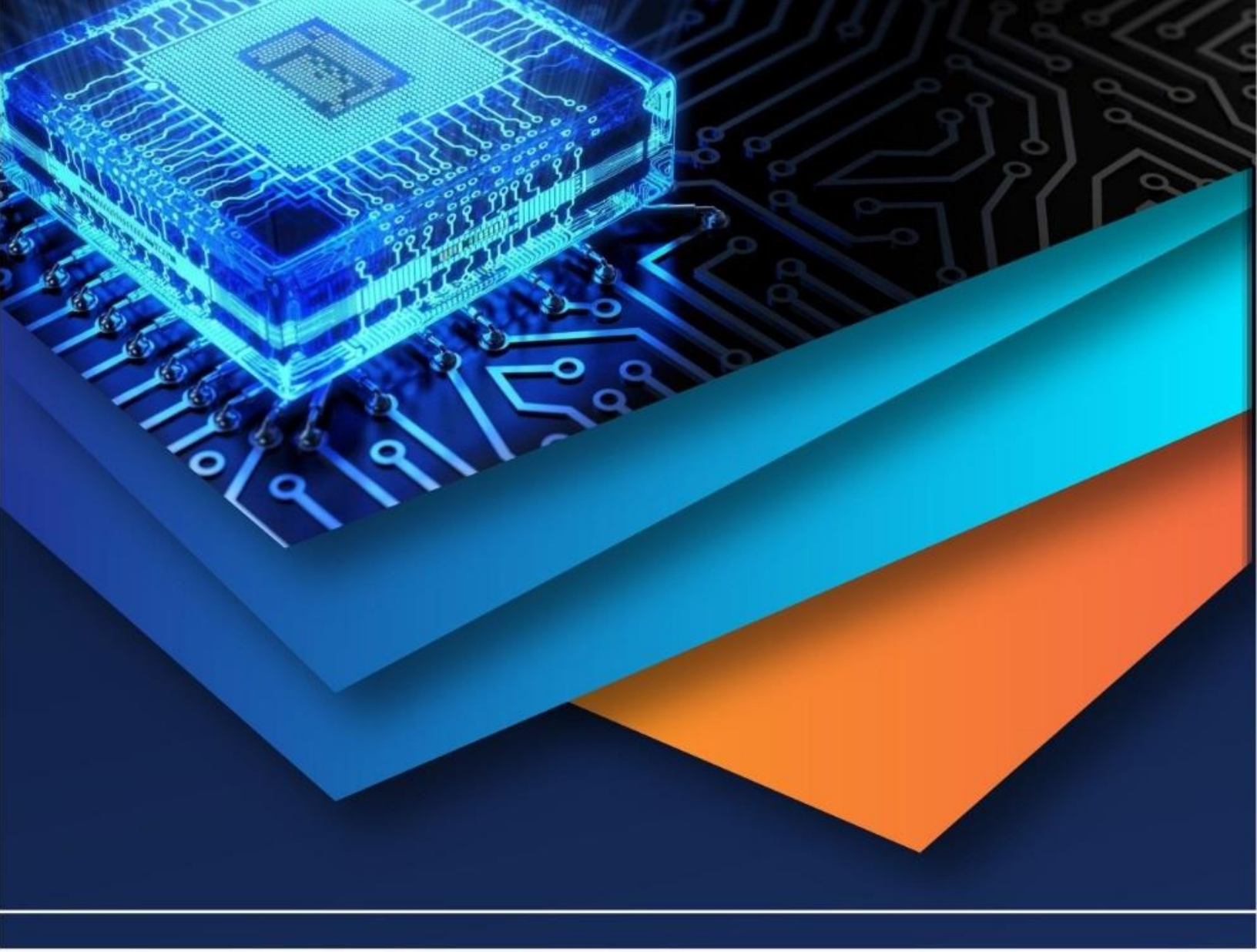
This article aims at surveying the use of Artificial Intelligence to corporate software license management, looking at 13 key publications to unpack how a landscape of fragments. AI solutions suggest the necessity for a coordinated strategy. platform. Our review confirms that traditional approaches to. Software Asset Management (SAM) is not enough. The licensing agreements are getting more difficult. the cost, and major compliance risks [2], [11]. [2], [11]. AI technologies. Crucial Enablers of ML, NLP, RPA Including RAG. making SAM an active strategic function The proposed. Licensly platform exemplifies an integrated path forward.

V. ACKNOWLEDGEMENT

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